

## **NL-22** User manual - Combo Heat seal machine



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# Preface

Dear User,

Welcome to the growing group of Thermopatch NL-22 press users. The product you have purchased has been carefully designed and manufactured to ensure that you, the user, will gain the maximum benefit.

All Thermopatch products are specifically designed to ensure ease of use with particular attention to safety requirements.

Should you discover any fault or damage upon receipt of this product, you should immediately contact your supplier.

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# 1. Introduction NL-22 press

**The NL-22 press** is a manually operated heat press for printing caps and similar small items. This simple robust machine is powered by a micro-processor for control of both heat and dwell accuracy and ease of operation and requires minimal operating space.

**The work area of the NL-22 press** is 100 x130 mm

**The NL-22 press** is produced in two versions, nominally 230 Volts AC and nominally 120 volts AC.

## 1.1 What did you receive

**The NL-22 press has been shrink wrapped** or shrink wrapped and placed in a cardboard box and held in place with foam. The following articles should have been delivered:

- NL-22 press complete with mains cable and plug and additional platens.
- NL-22 press Users' Handbook on CD
- Any extra items ordered

**If there is any damage** or any article is missing, please contact your supplier immediately.

## 1.2 Specifications of the NL-22 press

The NL-22 press is a manually operated heat press for transfer printing and material fusing. It is ideal for medium volume production.

Specifications	230 V
Power consumption	500 Watts
Power supply	230 Volts AC
Working temperature	70-235 °C
Machine height open	80 cms
Machine height closed	40 cms
Machine width	28 cms
Machine depth	52 cms
Net weight	14.5 kg
Press pad dimensions Pocket	13 x 10 cms
Press pad dimensions Caps	15 x 9 cms
Fuses	3.15A
A-weighted noise level	<70dB(A)

Specification	120 V
Power consumption	500 Watts
Power supply	120 Volts AC
Working temperature	160-455 °F
Machine height open	32 ins
Machine height closed	17 ins
Machine width	11 ins
Machine depth	21 ins
Net weight	32 lbs
Press pad dimensions Pocket	5 x 3.6 ins
Pres pad dimensions Caps	6 x 3,75 ins
Fuses	6.3A
A-weighted noise level	<70dB(A)

**The NL-22 press** is a manually operated heat press for printing caps and similar small items. This simple robust machine is powered by a micro-processor for control of both heat and dwell accuracy and ease of operation and requires minimal operating space.

**The work area of the NL-22 press** is 100 x130 mm

**The NL-22 press** is produced in two versions, nominally 230 Volts AC and nominally 120 volts AC.

### 1.3 Safety

The NL-22 press has been equipped with various safety features to ensure operator safety.

- A thermal cut-out on the heating element shuts off the power to the element if the temperature exceeds  $235\text{o} \pm 15\text{oC}$  ( $455 \pm 27\text{oF}$ ).
- The time/temperature controller has a built in facility giving error messages in the event of faults with the element heating and control system.

### 1.4 Safety Tips

**Our customer service** has its own service engineers and, if required, maintenance and advice is available upon request

**The NL-22 press** meets the European Legislation standard. Under normal conditions accidents are rare. However listed below are some practical points to ensure your safety.

**Always switch off** and isolate the mains supply (i.e. remove plug) before undertaking any maintenance work.

**Keep other people** away from the machine during use.

**Ensure that there is** sufficient space around the machine. Cables and connections must not get jammed. Although the heat radiation of the press is low, there should be enough space for cooling down.

**Avoid contact** with the press element.

**DO NOT REMOVE THE BASE BOARD OR CONTROLLER UNLESS QUALIFIED TO DO SO** - touching internal parts is dangerous and may cause shock hazard. All electrical connections inside covers are live. Never operate Press with any covers and/or guards removed.

**PROTECT THE MAINS CABLE** - damage to the mains cable may cause fire or shock hazard. When unplugging, hold by the plug only and remove carefully. Take care that the mains cable does not come into contact with the heat plate (or moving parts of the mechanism) during operation of the machine.

**OPERATING AMBIENT TEMPERATURE RANGE** - the operating ambient temperature range is 32oF - 104oF, (0 - 35°C) and humidity of 20 - 80%. This heat press is fitted with a thermal cut out to ensure that it cannot operate above 235° ± 15°C (455 ± 27°F).

**MACHINE FUSES** - type: ultra rapid (FF) fuses 1¼" 230 Vac max. 3.15 amps. (120 Vac max. 6.3 amps).

**WARNING - THIS APPARATUS MUST BE EARTHED (GROUNDED)**

**CAUTION**

This machine gets hot whilst operating. Take care not to touch any surfaces that are labelled "Caution this plate is HOT".

**MACHINE OPERATION**

**Only suitably trained personnel should operate this machine.**

**For Safety** use both handles to move the handle up and down.

**Do not** allow the handle to move upward, by the effect of the springs, without a hand on it

Keep fingers away from **trapping points** in the arm - lever toggle mechanism. Using both hands on the handle keeps the hands safe.

**Contact** your print media suppliers to ascertain whether fumes are given off during the transfer process, and if so what precautions are needed for operator safety. These may include air extraction and / or masks for personnel.

**Please refer to Appendix I for an illustration of the NL-22 press machine.**



## 2. Installation

### 2.1 Transport instructions

The machine comes to you in a box or shrink wrap. If you have to transport the machine at any time it is recommended that you use a similar box and packing methods. Please let the machine cool down and lower the handle to the locked position.

### 2.2 Installing the machine

- 2.2.1 Remove all packaging from the heat press.
- 2.2.1 Check to ensure that no damage has been caused to the machine during transit.
- 2.2.3 Place the machine on a sturdy horizontal surface that is within easy reach of the operator and allow space for the handle to move up to the loading position. Ensure that no items vulnerable to heat radiation are too close to the machine and that local lighting is adequate.

### 2.3 Electrical requirements

**The NL-22 press** should be connected to the mains supply, (nominally 230V AC for the European Market, or 120V AC for America) by the mains cable provided and a suitable plug. A qualified person should carry out this work.

**The press is designed** for 220-230 volts AC  $\pm$  50/60 hertz and requires exclusive use of a power outlet rated for at least 5 amps (Europe), or for 120 volts AC 8 amps (America).

**Ensure that** the supply rating on the machine specification plate corresponds with your local supply and that the correct plug is fitted.

#### MAINS LEAD

The wires in this mains lead are coloured in accordance with the following code:

230 VAC	[	Green and Yellow:	EARTH (GREEN)	]	120 VAC
		Blue:	NEUTRAL (WHITE)		
		Brown:	LIVE (BLACK)		

**As the colours** of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows: -

1. The wire coloured green and yellow must be connected to the terminal in the plug which is marked by the letter E, or by the safety earth symbol coloured green, or green and yellow.
2. The wire coloured blue must be connected to the terminal which is marked with the letter N, (Neutral connector)
3. The wire coloured brown must be connected to the terminal which is marked with the letter L, (Live connector)

#### 4. NOTE:

Replacement of the mains cable must be done by a competent service engineer.

#### HEATING ELEMENT

The heating element fitted to this press is rated at 500 Watts.

Never connect to any outlet or power supply having a different voltage/frequency from that on the machine data plate.

#### **2.3B Wiring the plug for a 120 VAC machine.**

1. The wire which has green insulation must be connected to the terminal in the plug coloured green or marked GR.
2. The wire which has white insulation must be connected to the terminal in the plug identified as neutral.
3. The wire which has black insulation must be connected to the terminal in the plug which is identified as live (line).
4. Note: Replacement of the power cord must be carried out by a qualified electrician in accordance with national and local electrical codes, and the instructions provided with the plug.

#### **2.4 Adjusting the pressure**

This press is fitted with a pressure adjusting unit, which enables the heat plate assembly to be raised or lowered by use of a pressure adjustment knob located on the top of the machine:

- a) To increase pressure or to use thinner materials turn knob clockwise.
- b) To decrease pressure or to raise the heat plate assembly to enable thicker materials to be used, turn the adjustment knob anticlockwise.

#### **NOTE**

DO NOT adjust the pressure when the machine is clamped shut

#### **CAUTION**

Never increase the pressure to the extent of requiring undue force to lower the toggle/heat plate assembly into the lock position, as this will place excessive stress on the press frame, resulting in permanent damage to the press.

#### **2.5 Adjusting the time and temperature**

Please refer to Appendix II showing the operation of the control unit.

## 3. How to Operate the NL-22 press

### 3.1 Starting with the NL-22 press

**3.1.1** Plug into your supply outlet and switch supply on.

N.B. Please ensure the mains plug is easily accessible to the operator so that in the event of a fault the machine can be unplugged.

**3.1.2** Turn on the NL-22 press; the on/off switch is to the right of the controller. Set the machine controls as necessary. See instructions for adjusting the pressure, 2.4, and the operation of the time temperature unit, 5.2. When the set temperature is steady in the display the machine is ready to use

### 3.2 Working with Heat Transfer Materials

**This section** is divided into Transfer Marking/Transfer Printing and Heat Bonding and Fusing.

**First ascertain from the supplier** of the material that it is suitable to be used, and obtain the correct heat and time dwell setting for the material and transfer. Approximate settings may be as follows:-

#### 3.2.1 Transfer Marking

200°C (392°F) - Heat setting 3 to 5 seconds - Time dwell setting
---

**NOTE: Transfer marking** is usually for the marking of materials for identification purposes and should not be confused with the transfer printing, as mentioned in the next section.

#### 3.2.2 Transfer Printing

190° - 200°C (374-392°F) - Heat setting 20 to 30 seconds - Time dwell setting
--

**NOTE: Always ascertain** from the supplier of material and transfer paper, that the material to be used is suitable for, and has been prepared for transfer printing.

#### 3.2.3 Heat Bonding - Fusing

140° - 200°C (284-392°F) - Heat setting 5 to 15 seconds - Time dwell setting
---

**3.2.4 Ensure that the heat setting** and dwell time setting are correct for the material being used.

**3.2.5 Adjust the pressure** setting of the machine by rotating the adjusting knob situated at the rear of the machine. (See exploded diagram in this manual. Clockwise for more pressure, anticlockwise for less pressure.

**3.2.6 Adjust the position** of the silicone pad table to align with the cap with the heat plate by loosening the locking knob situated underneath the silicone pad table, positioning it as required (front to back) and retightening the locking knob.

**3.2.7 Hook the cap** under the cap tensioning arm and pull the cap onto the silicone pad table.

**3.2.8 Place the transfer** in the desired position on the work.

**3.2.9 Gently pull the handle** forward into the lock position, using both hands for safety and ensuring the work is firmly clamped between the heat plate and pressure pad.

**3.2.10 When the pre-set dwell time** has been reached, a buzzer will sound. The heat plate should then be lifted by pushing the handle back to its full extent. The handle should be held until the up position is reached to remove the possibility of injury to the operator's face from an uncontrolled upward movement of the handle.

### 3.3 Material Fusing

**3.3.1 When the press is to be used** for the fusing of fusible interlining/heat bonding etc., ascertain from the supplier of the material to be used, the correct settings for time and temperature for the process.

**Approximate settings are usually within the following:-**

120° - 170°C (250° - 340°F) Heat Setting

5 - 30 seconds Time Dwell Setting

**The method of operation** for fusing is the same as for transfer printing.

**During the fusing operation** it will be found to be advantageous to lay a piece of PTFE cover material (the same size as the table), over the article being fused. This will act as an anti-stick barrier to prevent strike through of any surplus adhesive from the fusible materials adhering to the heat plate of the press.

140° - 200°C (284-392°F) - Heat setting

5 to 15 seconds - Time dwell setting

#### Note:

It is not advisable that this PTFE cover material be used when the press is being used for transfer printing.

### 3.4 Pressing Pad Assembly

The pressing pad normally supplied with this machine is silicone rubber. The pressing pad must be maintained in good condition at all times and replaced when showing signs of wear. A worn pressing pad will always affect the quality of printing/fusing. Do not insert items into the machine which would tend to cut the pressing pad, i.e. buttons, pins, press studs or zips.

Never allow the hot heat plate to rest on the pressing pad when the press is not being used as the pad may be damaged.

#### **IMPORTANT NOTE:**

The pressing pad supplied with the machine is of the correct thickness. Using a thicker pad may invalidate your warranty.

### 3.5 Shutting Down

To shut down the machine, turn off the green illuminated rocker switch to the right of the controller. The handle should be in the up position.

After shutting off the machine, it should not be switched on again for 30 seconds.

### 3.6 Fault Diagnosis

This machine has a built in fault diagnosis. The display may show the following:

#### **1. Heat Fault**

If the element of the heat press, or the thermal cut-out go open circuit, after approximately 20 minutes the display will show "Heat Fault". If this display is seen, contact your machine supplier immediately.

#### **2. Probe Fault**

If the probe goes open circuit, the display will show "Probe Fault" immediately. Contact your machine supplier immediately.

#### **3. "CAL" Fault**

If "CAL" appears in the controller display the controller will need to be recalibrated. Switch off the machine and contact your supplier for an instruction sheet.

#### **CAUTION**

**In all fault conditions,** switch off the power to the machine and unplug the machine from the electrical supply before contacting your machine supplier.

### 3.7 Hints and Tips

#### Transfer Printing

Extra care should always be taken to ensure that transfer paper is placed print down onto the article as mistakes will result in the heat plate becoming soiled with ink and spoiling following work.

**When transfer printing**, it may be found advantageous to cover the press pad with paper to prevent strike-through of surplus ink, particularly when printing thin material as surplus print on the pressing pad cover can also strike back on the following work.

#### Transfer Paper/Motifs Fail to Print Out Correctly

##### Check:-

1. **Heat and time** dwell settings are correct.
2. **Article** having transfer applied is locked in contact between pressing pad and heat plate.
3. **Pressing pad** is in good condition, and making complete contact over the whole area of the heat plate. See Pressing Pad details.

#### “Ghosting” (Double Image) of Transfer Prints

##### Check:-

1. **Material being used** has been correctly heat set for transfer printing.
2. **Material being used** does not shrink during printing process, i.e. measure material before and after printing.
3. **Transfer paper** does not move after printing process upon lift off of the heat plate.
4. **If possible**, use adhesive coated paper, particularly to overcome fabric shrinkage.
5. **By pre-shrinking** of material in press before transfer printing.

## 4. Machine layout

### 4.1 Daily Maintenance

For good press results it is important to keep the press surfaces clean. Wipe the surface of the heat plate with a dry non abrasive cloth before use when the plate is cold.

### 4.2 Periodic Maintenance

Put a few drops of oil onto the various pivot pins and the pressure adjusting screw every three months.

### 4.3 Cleaning

First unplug the machine. Clean the outside of the machine frequently with a clean, moist cloth. This may conveniently be carried out when the machine is cold.

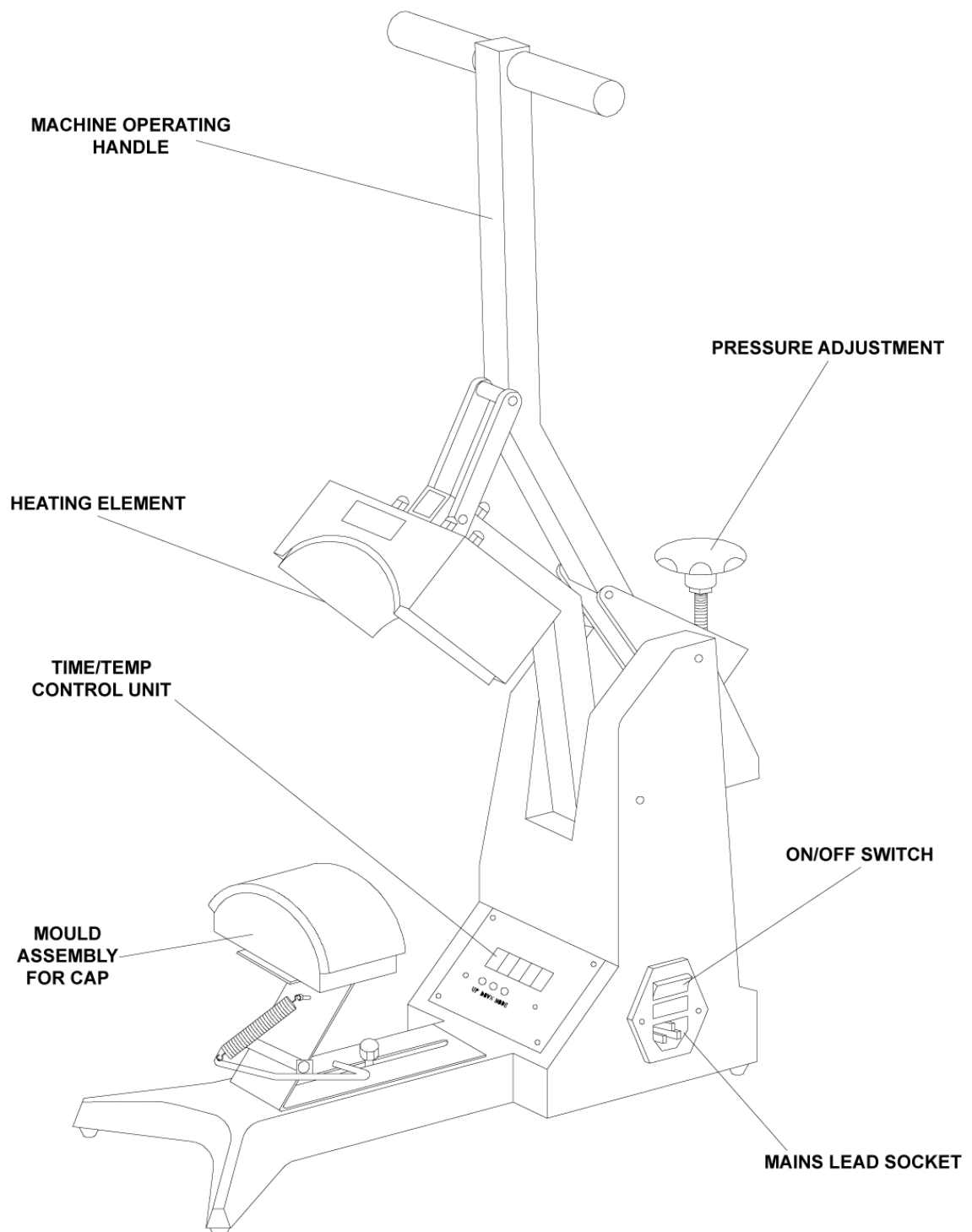
## 5. Machine Drawings, Diagrams and Declarations

**On the following pages** are the schematic diagrams for the NL-22 press machine.

5.1	General Layout	Appendix I
5.2	Control Unit - Operation	Appendix II
5.3	Exploded Diagram and Parts List	Appendix III / IV
5.4	Electrical Diagram	Appendix V
5.5	Controller - Electrical Diagram	Appendix VI
5.6	Declaration of Conformity	Appendix VII



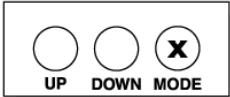
## 5.1 General Layout of the NL-22 Cap Pocket Combo Press



## 5.2 Operation of Control Unit, Setting Time and Temperature

(The head must always be in the up position before the controller is set)

**1**



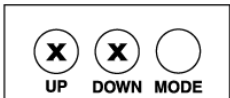
To set the Time:  
Press the MODE button once.

**2**

TEMP.	TIME	
	0	20
	M.	SEC.

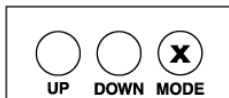
The display will now show.

**3**



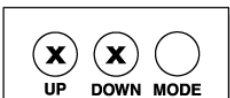
Use the "UP" & "DOWN" buttons  
to set the desired time  
within the range 0 to 9mins. 59 secs.

**4**



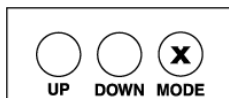
Now press the "MODE" button, this will save  
the set time and put the controller into the  
set temperature mode.

**5**



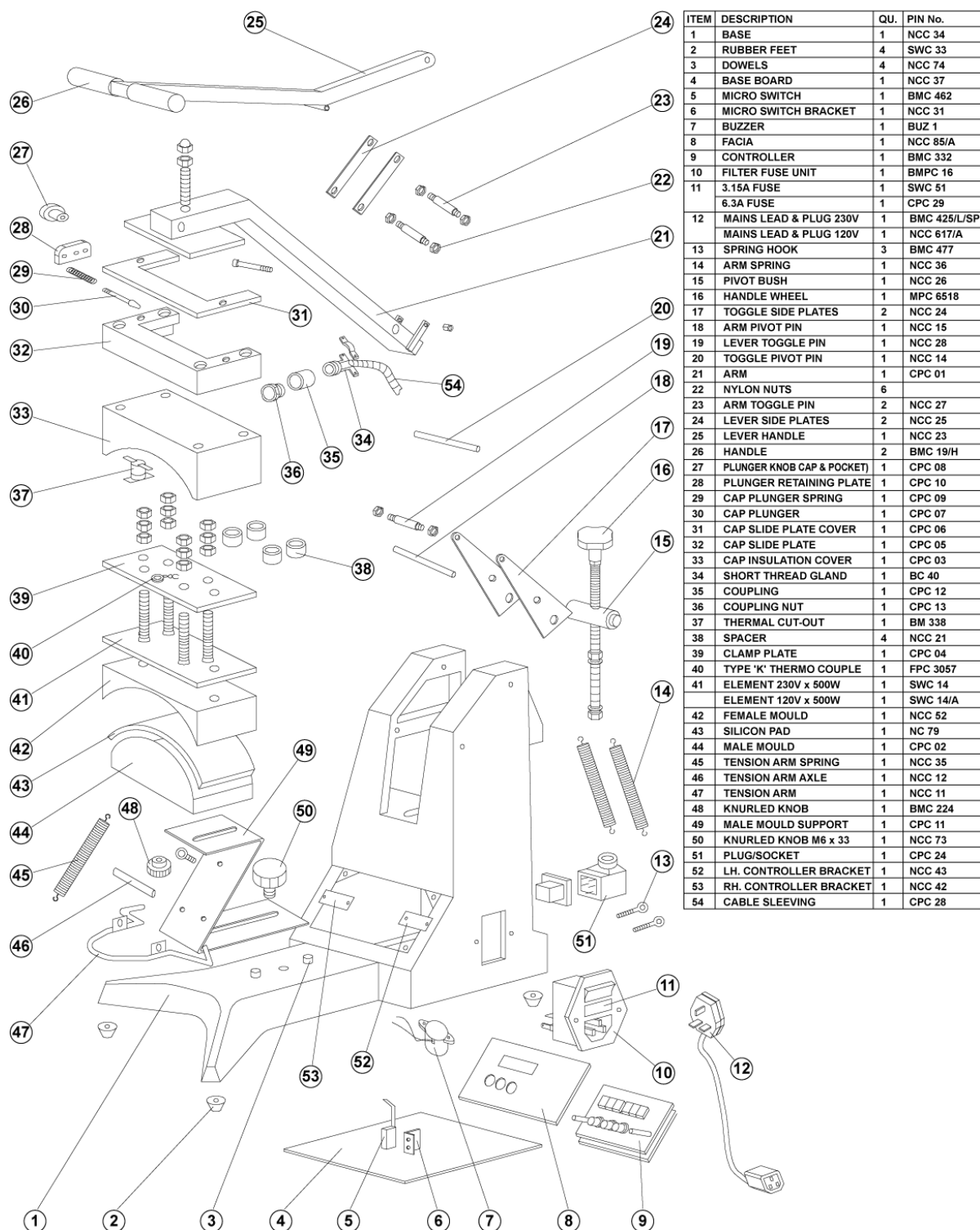
Use the "UP" & "DOWN" buttons  
to set the desired temperature  
within the range 70-235°C  
(158°F-455°F)

**6**

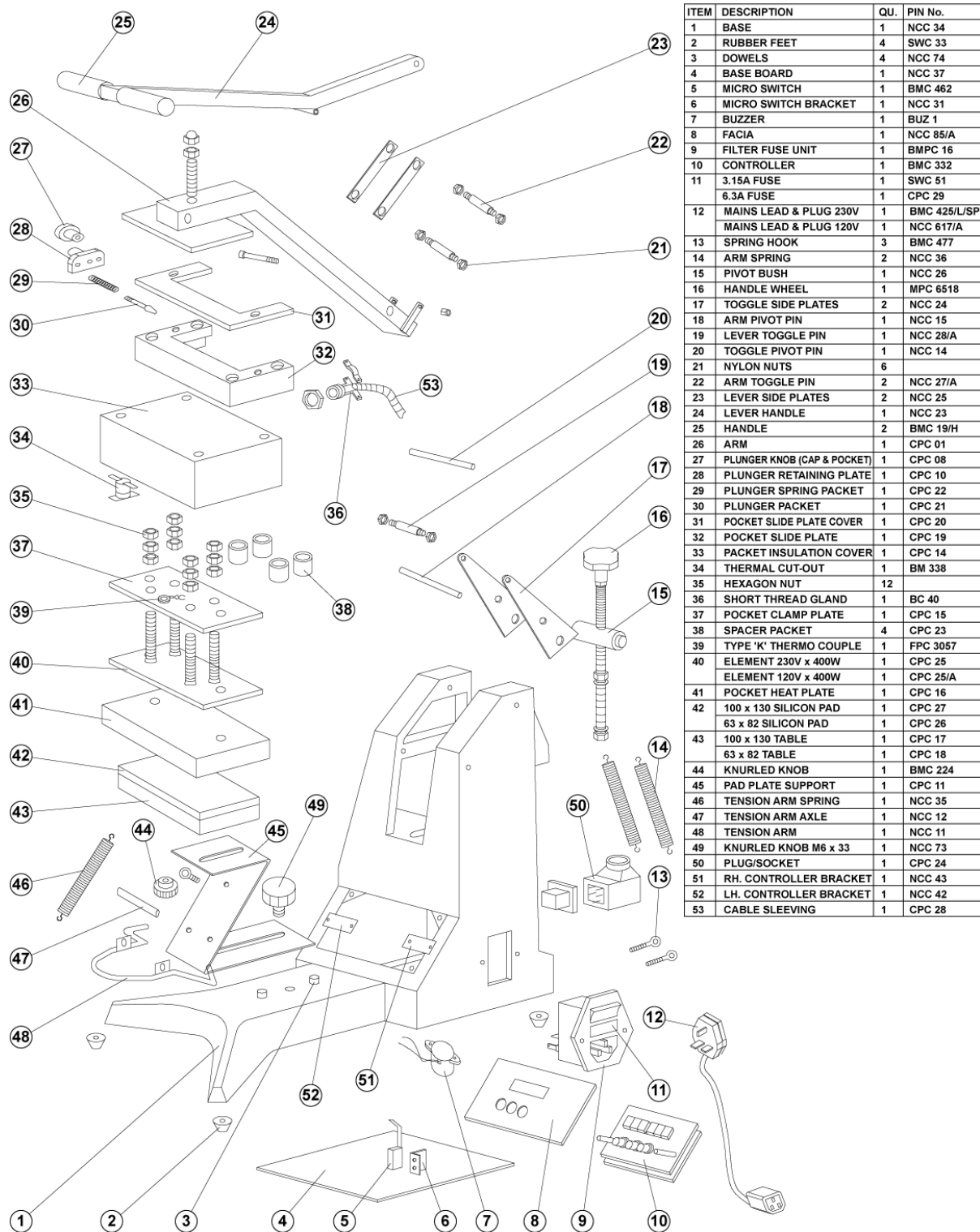


Press the "MODE" button once, this will save  
the temperature and return the controller into  
its normal operating condition.

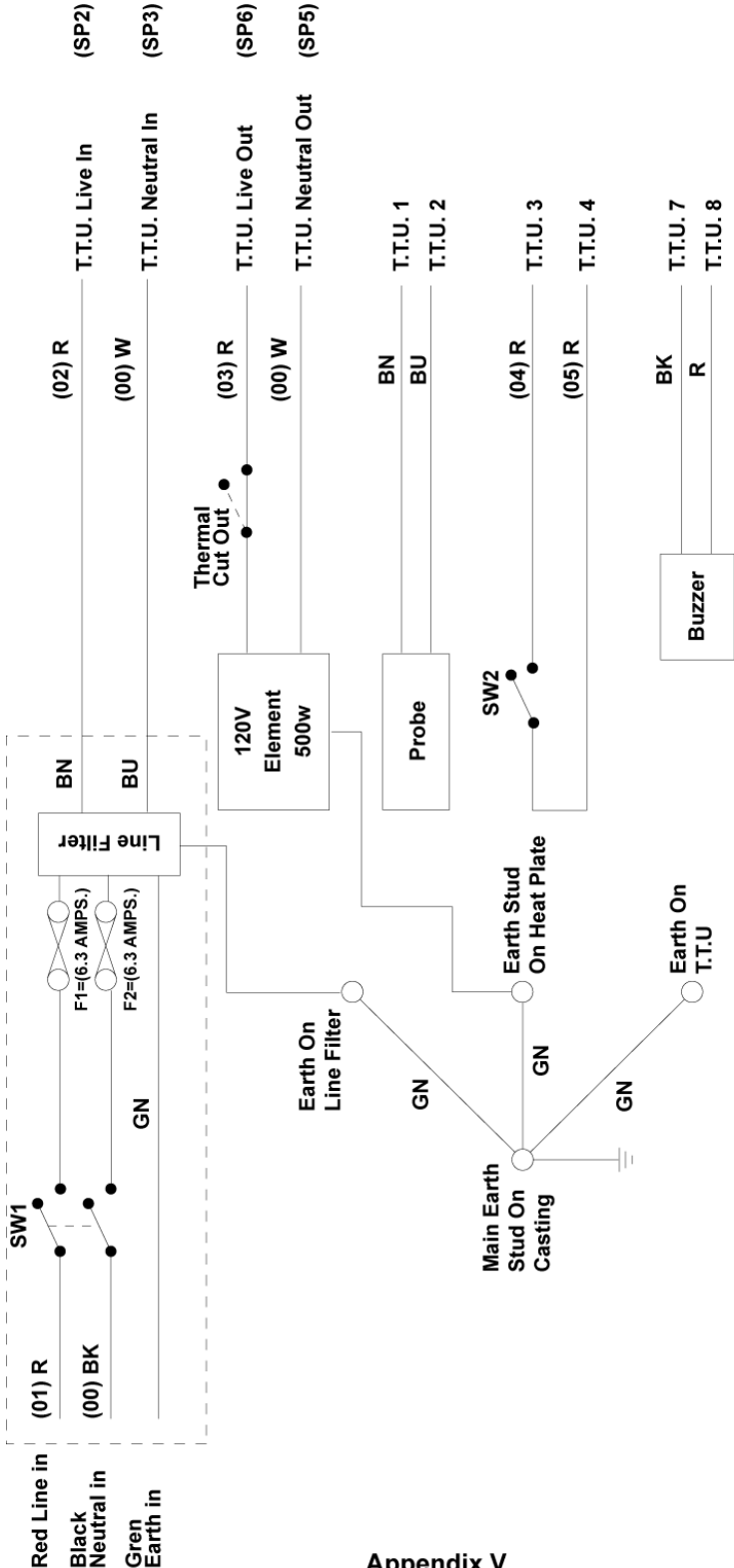
## 5.3 Exploded Diagram and Parts List (with Cap Attachment)



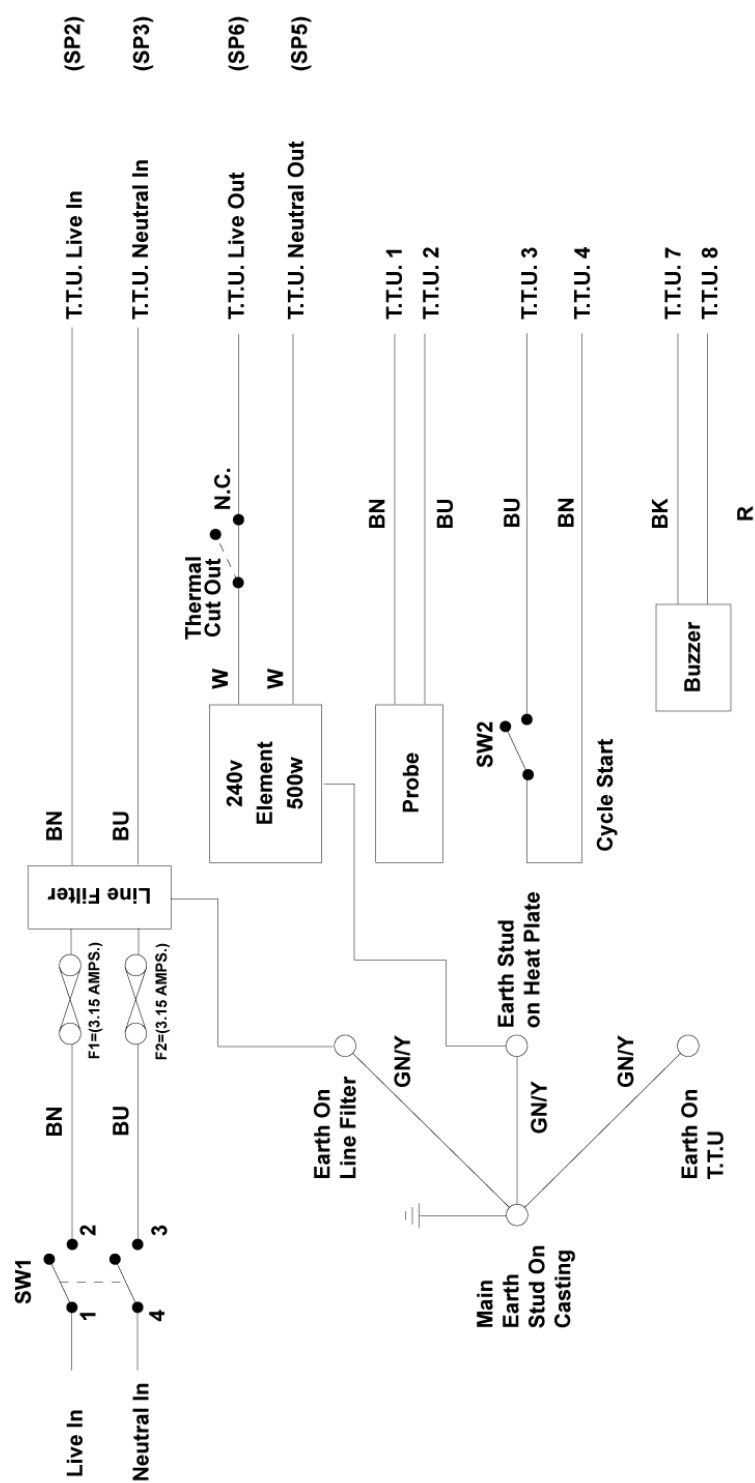
## 5.3 Exploded Diagram and Parts List (with Pocket Attachment)



## 5.4 Electrical Diagram (120 VAC)



# 5.4 Electrical Diagram (240 VAC)

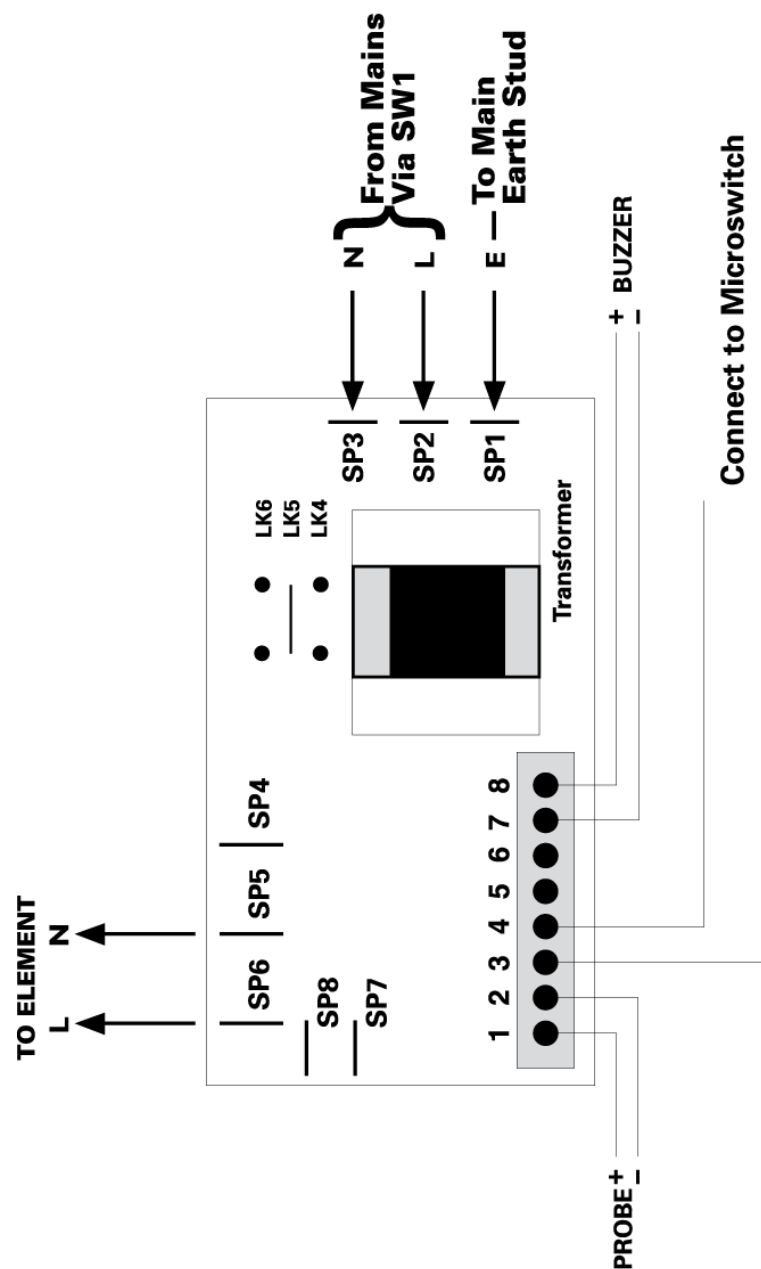


KEY:

BN	= BROWN	BK	= BLACK
BU	= BLUE	T.T.U	= Time Temperature Unit
W	= WHITE	SW1	= ON/OFF SWITCH
GN	= GREEN	SW2	= MICROSWITCH
R	= RED		

The fuse rating and element power are 240v.  
For 120v equivalent see specifications on page 3.

## 5.5 Controller Electrical Diagram



# DECLARATION OF CONFORMITY

Application of Council Directives:	Machinery, Low Voltage. E.M.C
Standards to which Conformity is Declared:	<u>BS EN 292-1:1991</u> - Safety of machinery: Basic Technology. <u>BS EN 292-2:1991</u> - Safety of machinery: Principles of Design. <u>BS EN 60204-1:1991</u> - Safety of machinery: Electrical Equipment of Machines. <u>BS EN 60529:1992</u> - Degrees of protection provided by enclosures. <u>BS EN 418:1992</u> - Safety of machinery: Emergency Stops. <u>BS EN 1050:1997</u> - Safety of machinery: Principles for Risk Assessment. <u>E 55011:1998</u> - Class A Group 2 equipment - EMC Emissions. <u>EN 50081-1:1992</u> - EMC Conducted Emissions. <u>EN 50082-2:1995</u> - EMC Immunity. <u>BS 5304:1998</u> - Safety of machinery.
Manufacturer's Name:	<b>Thermopatch bv</b>
Manufacturer's Address:	Draaibrugweg 14 1332 AD Almere The Netherlands
Type of Equipment:	<b>Small Format Heat Presses</b>
Model Number:	NL-22
Serial Number:	See invoice
Year of Manufacture:	See serial number plate on machine

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Place: Almere, The Netherlands

Signature: 

Date: Invoice date

Name: Jan Bausch  
Position: General Manager

## Appendix VII



## 6. Design Change

**With the policy of constant improvement** and/or modification to meet changing conditions, the right is reserved to change the design and/or specifications at any time without prior notification, and therefore specifications may vary and not be in accordance with this manual.

## 6. Guarantee

**This press is guaranteed** to be free from defects in material and workmanship (excluding pressing pad assembly) for a period of 12 months from the date of supply.

**Should in our opinion** any part of this press be defective in materials or workmanship, it will be replaced or repaired free of charge, provided that the press has been installed and operated in the correct manner and not subjected to misuse. (This is excluding any travelling and/or carriage costs which will be charged at our discretion.)

**A charge will be made** for any costs incurred if a reported fault on the press is found to be due to incorrect installation, operation and/or incorrect materials being used. It is the responsibility of the press user to ensure the suitability of the materials operating through the press.

**In order for this guarantee** to be effective, no return of machine or parts may be made without prior factory authorisation.

**The manufacturer shall not** be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product.

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